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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte THOMAS A. PIAZZA and VAL G. COOK

Appeal 2007-3098
Application 09/227,174
Technology Center 2600

Decided: February 7, 2008

Before KENNETH W. HAIRSTON, ROBERT E. NAPPI, and SCOTT R. BOALICK, *Administrative Patent Judges.*

NAPPI, *Administrative Patent Judge.*

DECISION ON APPEAL

This is a decision on appeal under 35 U.S.C. § 6(b) of the final rejection of claims 29 through 50.

We affirm the Examiner's rejections of these claims.

INVENTION

The invention is directed to a method and apparatus for motion compensation of graphics. The correction data is stored in a first order and

read in a second order. See page 3 of the Specification. Claims 29 and 41 are representative of the invention and reproduced below:

> 29. A circuit for generating motion compensated video, the circuit comprising:
>
> a command stream controller to manipulate motion compensated video data;
>
> a write address generator coupled to the command stream controller;
>
> a memory coupled to the command stream controller and to the write address generator, the memory to store pixel data in a first order determined by the write address generator;
>
> processing circuitry coupled to the write address generator to receive control information and data from the command stream controller to generate a reconstructed video frame; and
>
> a read address generator coupled to the processing circuitry and to the memory, the read address generator to cause the memory to output pixel data in a second order, wherein the second order comprises a sub-block-by-sub-block in row major order.
>
> 41. A method comprising:
>
> storing pixel data in a memory in a first order based on output from an Inverse Discrete Cosine Transform (IDCT) operation;
>
> receiving a command to generate a reconstructed video frame; and
>
> reading the pixel data out of the memory in a second order, wherein the second order comprises reading the pixel data sub-block-by-sub-block in row major order.

REFERENCES

Fujinami	US 5,337,086	Aug. 9, 1994
Tourtier	US 5,446,495	Aug. 29, 1995
Eto	US 5,652,823	Jul. 29, 1997

Mizobata	US 5,892,518	Apr. 6, 1999
Hocevar	US 6,002,438	Dec. 14, 1999
Herrera	US 6,208,350 B1	Mar. 27, 2001

REJECTIONS AT ISSUE

Claim 33 stands rejected under 35 U.S.C. § 112 second paragraph as being indefinite. The Examiner's rejection is on page 4 of the Answer.

Claims 29, 31, 32, 41, 42, 45, and 48 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Eto in view of Fujinami and Hocevar. The Examiner's rejection is on pages 4 through 7 of the Answer.

Claims 33, 34, 43, 44, 46, 47, 49, and 50 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Eto in view of Fujinami, Hocevar, and Mizobata. The Examiner's rejection is on pages 7 and 8 of the Answer.

Claims 30 and 36 through 39 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Eto in view of Fujinami, Hocevar, and Herrera. The Examiner's rejection is on pages 9 and 10 of the Answer.

Claim 35 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Eto in view of Fujinami, Hocevar, and Tourtier. The Examiner's rejection is on pages 10 and 11 of the Answer.

Claim 40 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Eto in view of Fujinami, Hocevar, Herrera, and Tourtier. The Examiner's rejection is on page 11 of the Answer.

Throughout the opinion, we make reference to the Brief (received November 24, 2003) and the Answer (mailed August 22, 2006) for the respective details thereof.

ISSUES

Initially, we note that for each rejection, Appellants have grouped all of the claims together. Thus, in accordance with 37 C.F.R. § 1.192(c)(7), which was in effect at the time of filing of the Brief, we select one claim as representative of each grouping.

Rejection under 35 U.S.C. § 112 second paragraph.

Appellants have presented no arguments directed to the Examiner's rejection of claim 33 under 35 U.S.C. § 112 second paragraph.

Thus, there are no issues before us concerning this rejection as Appellants have not contested this rejection.

Rejection under 35 U.S.C. § 103(a) as being unpatentable over Eto in view of Fujinami and Hocevar.

Appellants contend, on pages 6 through 10 of the Brief, that the Examiner's rejection of claims 29, 31, 32, 41, 42, 45, and 48 under 35 U.S.C. § 103(a) as being unpatentable over Eto in view of Fujinami and Hocevar is in error. Appellants state that the grouped claims recite storing pixel data in a first order and outputting the data in a second order. Brief 7. Appellants do not contest the Examiner's findings that the references teach these limitations of the claims, rather, Appellants state on page 8 of the Brief:

> Whether or not these references [Eto, Fujinami and Hocevar] teach the above-cited limitations, they do not provide any suggestion or motivation that the references be combined. In other words, the simple assertion that *Eto* discloses reading and writing data in one order and that a combination of *Fujinami* and *Hocevar* discloses reading and writing data in another order does not reflect the complexity of reading data out in a different order from which it was originally written. The value of separate and individual components in this case is outweighed by the synergy of combining those components into a single and unified structure

Appellants assert the Examiner's rationale does not provide evidence to support an "explicit or implicit motivation, suggestion, or teaching to combine references." Brief 8.

Additionally, Appellants assert that the references fail to disclose the write and the read address generator claimed.

Thus, Appellants' contentions, with respect to the rejection of claims 29, 31, 32, 41, 42, 45, and 48 under 35 U.S.C. § 103(a), present us with two issues. The first issue is whether the combination of the references teaches or suggests a read and write address generator as claimed. The second issue is whether the Examiner erred in determining that it would have been oblivious to the skilled artisan to combine the references. As discussed *supra*, Appellants grouped claims 29, 31, 32, 41, 42, 45, and 48 together. We select claim 41 as a representative claim of the group.

Rejection under 35 U.S.C. § 103(a) as being unpatentable over Eto in view of Fujinami, Hocevar, and Mizobata.

Appellants contend, on pages 10 and 11 of the Brief, that the Examiner's rejection of claims 33, 34, 43, 44, 46, 47, 49, and 50 under 35 U.S.C. § 103(a) as being unpatentable over Eto in view of Fujinami,

Hocevar, and Mizobata is in error. Appellants state that the claims of this group recite a bounding box and the processing of the pixels within the bounding box. Appellants acknowledge the Examiner's findings that Mizobata discloses this feature, and do not contest these findings. Answer 10, 11. Rather, Appellants state:

> Whether or not *Mizobata* discloses the limitations cited by the Final Office Action, it does not teach or suggest storing pixel data in a first order and outputting pixel data in a second order as claimed by Appellant. Therefore, *Mizobata* fails to cure the deficiencies of *Eto*, *Fujinami*, and *Hocevar* discussed above with respect to Claim Group I.

Thus, Appellants' contentions with respect to the rejection under 35 U.S.C. § 103(a) based upon Eto in view of Fujinami, Hocevar, and Mizobata present us with the same issue as discussed above with respect to the Examiner's rejection under 35 U.S.C. § 103(a) as being unpatentable over Eto in view of Fujinami and Hocevar.

Rejection under 35 U.S.C. § 103(a) as being unpatentable over Eto in view of Fujinami, Hocevar, and Herrera.

Appellants contend, on pages 11 through 13 of the Brief, that the Examiner's rejection of claims 30 and 36 through 39 under 35 U.S.C. § 103(a) as being unpatentable over Eto in view of Fujinami, Hocevar, and Herrera is in error. Appellants state that the claims in this group, besides reciting the limitations discussed with respect to the claims in the rejection based upon Eto in view of Fujinami and Hocevar, also recite the processing unit performing texture mapping. Brief 12. Appellants acknowledge the Examiner's findings that Herrera discloses this feature, and do not contest these findings. Answer 11, 12. Rather, Appellants state:

> Whether or not *Herrera* discloses the limitations cited by the Final Office Action, it does not teach or suggest storing pixel data in a first order and outputting pixel data in a second order as claimed by Appellant. Therefore, *Herrera* fails to cure the deficiencies of *Eto*, *Fujinami*, and *Hocevar* discussed above with respect to Claim Group I.

Brief 11, 12. Further, Appellants assert that Herrera teaches away from being combined with Eto. Appellants reason that Eto is directed to an apparatus whereas Herrera teaches "a combination of a modified graphics accelerator with software to create a cost effective hybrid solution to provide a personal computer with DVD capabilities." Brief 13.

Thus, Appellants' contentions with respect to the rejection under 35 U.S.C. § 103(a) based upon Eto in view of Fujinami, Hocevar, and Herrera present us with the same issue as discussed above with respect to the Examiner's rejection under 35 U.S.C. § 103(a) as being unpatentable over Eto in view of Fujinami and Hocevar. Additionally, Appellants' contentions present us with the issue of whether Herrera teaches away from being combined with Eto.

Rejection under 35 U.S.C. § 103(a) as being unpatentable over Eto in view of Fujinami, Hocevar, and Tourtier.

Appellants contend, on pages 14 and 15 of the Brief, that the Examiner's rejection of claim 35 under 35 U.S.C. § 103(a) as being unpatentable over Eto in view of Fujinami, Hocevar and Tourtier is in error. Appellants acknowledge the Examiner's findings that Tourtier discloses motion compensation pipeline processing is well known and do not contest these findings. Answer 14. Rather, Appellants state:

> Whether or not *Tourtier* discloses the limitations cited by the Final Office Action, it does not teach or suggest storing pixel data in a first

> order and outputting pixel data in a second order as claimed by Appellant. Therefore, *Tourtier* fails to cure the deficiencies of *Eto*, *Fujinami*, and *Hocevar* discussed above with respect to Claim Group I.

Brief 14. Further, Appellants argue that the Examiner has not properly established a case of obviousness as "*Tourtier* does not, in and of itself, address the complexities of storing data in a first order and reading the data out in a second order within the framework of a pipelined circuitry." Brief 14, 15.

Thus, Appellants' contentions with respect to the rejection of claim 35 present us with the same issue as discussed above with respect to the Examiner's rejection under 35 U.S.C. § 103(a) based upon Eto in view of Fujinami and Hocevar. Additionally, Appellants' contentions present us with the issue of whether the Examiner properly found that one skilled in the art would use the techniques of Tourtier with the techniques of the other references in the rejection.

Rejection under 35 U.S.C. § 103(a) as being unpatentable over Eto in view of Fujinami, Hocevar, Herrera, and Tourtier.

Appellants contend, on pages 15 and 16 of the Brief, that the Examiner's rejection of claim 40 under 35 U.S.C. § 103(a) as being unpatentable over Eto in view of Fujinami, Hocevar, Herrera, and Tourtier is in error. Appellants acknowledge the Examiner's findings that Tourtier discloses motion compensation pipeline processing is well known and do not contest these findings. Answer 15. Rather, Appellants state:

> Whether or not *Tourtier* discloses the limitations cited by the Final Office Action, it does not teach or suggest storing pixel data in a first order and outputting pixel data in a second order as claimed by Appellant. Therefore, *Tourtier* fails to cure the deficiencies of *Eto*,

> *Fujinami*, and *Hocevar* discussed above with respect to Claim Group I.

Brief 16. Further, the Appellants argue that the rejection is improper for the reasons discussed with respect to the rejection of claim 35.

Thus, Appellants' contentions with respect to the rejection of claim 40 present us with the same issues as discussed above with respect to the rejection of claim 35.

PRINCIPLES OF LAW

On the issue of obviousness, the Supreme Court has recently stated that "[t]he obviousness analysis cannot be confined by a formalistic conception of the words teaching, suggestion, and motivation." *KSR Int'l Co. v. Teleflex Inc.*, 127 S. Ct. 1727, 1741 (2007). Further, the Court stated "[t]he combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results." *KSR Int'l Co. v. Teleflex Inc.*, 127 S. Ct. at 1739.

> When a work is available in one field of endeavor, design incentives and other market forces can prompt variations of it, either in the same field or a different one. If a person of ordinary skill can implement a predictable variation, § 103 likely bars its patentability. For the same reason, if a technique has been used to improve one device, and a person of ordinary skill in the art would recognize that it would improve similar devices in the same way, using the technique is obvious unless its actual application is beyond his or her skill. . . . [A] court must ask whether the improvement is more than the predictable use of prior art elements according to their established functions.

Id. at 1740. "One of the ways in which a patent's subject matter can be proved obvious is by noting that there existed at the time of invention a

known problem for which there was an obvious solution encompassed by the patent's claims." *Id.* at 1742.

Our reviewing court has summarized the burden of proof in *In re Kumar* 418 F.3d 1361, 1366, (Fed. Cir. 2005), stating :

> During examination, the examiner bears the initial burden of establishing a *prima facie* case of obviousness. *Oetiker*, 977 F.2d at 1445. The *prima facie* case is a procedural tool, and requires that the examiner initially produce evidence sufficient to support a ruling of obviousness; thereafter the burden shifts to the applicant to come forward with evidence or argument in rebuttal. *Piasecki*, 745 F.2d at 1475. When rebuttal evidence is provided, the *prima facie* case dissolves, and the decision is made on the entirety of the evidence. *Oetiker*, 977 F.2d at 1445; *In re Spada*, 911 F.2d 705, 708 (Fed. Cir. 1990); *In re Rinehart*, 531 F.2d 1048, 1052 (CCPA 1976).

ANALYSIS

Rejection under 35 U.S.C. § 112 second paragraph.

There are no issues before us concerning this rejection and we affirm the Examiner's rejection of claim 33 under 35 U.S.C. § 112 second paragraph, *Pro Forma*.

Rejection under 35 U.S.C. § 103(a) as being unpatentable over Eto in view of Fujinami and Hocevar.

Appellants' arguments directed to these claims have not persuaded us of error in the Examiner's rejection.

As discussed *supra*, Appellants grouped claims 29, 31, 32, 41, 42, 45, and 48 together, we select claim 41 as a representative claim of the group. Appellants' arguments directed to the first issue are not commensurate in

scope with representative claim 41.[1] Claim 41, reproduced above, does not recite either a read or write address generator that determines the order in which pixel data will be written to or read from memory. Rather, claim 41 recites "storing pixel data in a memory in a first order based on output from an Inverse Discrete Cosine Transform (IDCT) operation" and "reading the pixel data out of the memory in a second order, wherein the second order comprises reading the pixel data sub-block-by-sub-block in row major order." Appellants have not challenged the Examiner's finding that the references teach these limitations, but as discussed *infra*, with respect to the second issue have challenged the Examiner's determination that one skilled in the art would combine the teachings of the references. Thus, Appellants' contentions directed to the first issue have not persuaded us of error in the Examiner's rejection of claim 41.

Appellants' arguments directed to the second issue have similarly not persuaded us of error in the Examiner's rejection. Appellants' arguments are directed to the Examiner's rejection not meeting the Teaching, Suggestion, Motivation (TSM) test. On the issue of obviousness, the Supreme Court has recently stated that "[t]he obviousness analysis cannot be confined by a formalistic conception of the words teaching, suggestion, and motivation." *KSR Int'l Co. v. Teleflex Inc.*, 127 S. Ct. 1727, 1741 (2007). Thus, whether the Examiner's rejection meets the TSM test is not

[1] Further, we note that Appellants' argument, on page 9 of the Brief, that Eto teaches read/write control signals that trigger storage or output from memory, but does not teach the address generators is not persuasive. On page 12 of the Answer, the Examiner cites to column 35 of Eto as teaching this limitation. Eto teaches, col. 35, ll. 13-29, that a controller generates these signals; further, one skilled in the art would recognize that any read or write command is accompanied by an address.

determinative of error in the Examiner's rejection. The Court stated that the combining of familiar elements is likely to be obvious when it does no more than yield predictable results.

As discussed above, Appellants have not contested the Examiner's findings that the features of claim 41 were known at the time of the invention. The Examiner has stated:

> It would have been obvious to one of ordinary skill in the art, having the Eto et al, Fujinami, and Hocevar et a1 references in front of him/her and the general knowledge of block processings within motion compensation video systems, would have had no difficulty in providing a first order being block by block in row major order, storing the correction data in a memory block by block in row major order, reading the correction data from the memory sub-block by sub-block in row major order, and reading the pixel data in subblock by subblock major order as part of the reading and writing of block and subblock data within Eto et a1 in view of the teachings of the combination of Fujinami and Hocevar et a1 for the same well known selective block processings as claimed.

Answer 6, 7. Thus, the Examiner has established that the recited claim limitations of "storing pixel data in a memory in a first order based on output from an Inverse Discrete Cosine Transform (IDCT) operation" and "reading the pixel data out of the memory in a second order, wherein the second order comprises reading the pixel data sub-block-by-sub-block in row major order" are known elements and that their combination would yield predictable results. As the Examiner has established a prima facie case of obviousness, the burden is on the Appellants to produce evidence or argument to rebut the Examiner's prima facie case. We note that Appellants state "[t]he value of separate and individual components in this case is outweighed by the synergy of combining those components into a single and unified structure." Brief 8. However, we do not find sufficient evidence to

support this statement and rebut the Examiner's *prima facie* case of obviousness. Thus, Appellants have not persuaded us of error in the Examiner's rejection of claim 41. Accordingly, we affirm the Examiner's rejection of claims 29, 31, 32, 41, 42, 45, and 48 under 35 U.S.C. § 103(a) as being unpatentable over Eto in view of Fujinami and Hocevar.

Rejection under 35 U.S.C. § 103(a) as being unpatentable over Eto in view of Fujinami, Hocevar and Mizobata.

Appellants' arguments directed to this rejection present the same issue as discussed above with respect to the rejection under 35 U.S.C. § 103(a) based upon Eto in view of Fujinami and Hocevar. As discussed *supra*, Appellants' arguments have not persuaded us of error in the rejection under 35 U.S.C. § 103(a) based upon Eto in view of Fujinami and Hocevar. Accordingly, we affirm the Examiner's rejection of claims 33, 34, 43, 44, 46, 47, 49, and 50 under 35 U.S.C. § 103(a) as being unpatentable over Eto in view of Fujinami, Hocevar, and Mizobata.

Rejection under 35 U.S.C. § 103(a) as being unpatentable over Eto in view of Fujinami, Hocevar, and Herrera.

Appellants' arguments directed to this rejection present the same issue as discussed above with respect to the rejection under 35 U.S.C. § 103(a) based upon Eto in view of Fujinami and Hocevar. As discussed *supra*, Appellants' arguments have not persuaded us of error in the rejection under 35 U.S.C. § 103(a) based upon Eto in view of Fujinami and Hocevar.

Appellants' contentions directed to the issue of whether Herrera teaches away from being combined with Eto have not convinced us of error

in the Examiner's rejection. Eto teaches a solution to provide smooth playback of encoded video information, when the video information is played back in the reverse direction from when it was encoded (i.e. watching the video being played backward or during a rewind). See Eto's Abstract. Eto teaches using this technique on a video encoding/decoding apparatus, however, we find no teaching, nor have Appellants cited to any teaching, in Eto that the technique is limited to video encoding/decoding apparatus and can not be equally applied to software which performs DVD capabilities (video encoding/decoding). Rather, we consider that one skilled in the art would recognize that the techniques of Eto's device would perform the same function in the software of Herrera; similarly, the techniques of texture mapping taught by Herrera will perform the same function in the device of Eto. Thus, Appellants have not persuaded us of error in the Examiner's rejection based upon Eto in view of Fujinami, Hocevar, and Herrera. Accordingly, we affirm the Examiner's rejection of claims 30, and 36 through 39 under 35 U.S.C. § 103(a).

Rejection under 35 U.S.C. § 103(a) as being unpatentable over Eto in view of Fujinami, Hocevar, and Tourtier.

Appellants' arguments directed to this rejection present the same issue as discussed above with respect to the rejection under 35 U.S.C. § 103(a) based upon Eto in view of Fujinami and Hocevar. As discussed *supra*, Appellants' arguments have not persuaded us of error in the rejection under 35 U.S.C. § 103(a) based upon Eto in view of Fujinami and Hocevar.

Appellants' contentions directed to the issue of whether the Examiner properly found that one skilled in the art would use the techniques of

Tourtier with the techniques of the other references in the rejection are similarly unpersuasive of error. The Examiner has found that a person having ordinary skill in the art with "the Eto, Fujinami, Hocevar et al, and Tourtier et al references in front of him/her and the general knowledge of pipeline processings within motion compensation video systems, would have had no difficulty in providing the multiple frame prediction operations in response to multiple motion compensation commands in a pipeline manner as taught by Tourtier et al as part of the motion compensation video system of Eto for the same well known purposes as claimed." Answer 10, 11. Thus, the Examiner has found that the techniques of Eto, Fujinami, and Hocevar would similarly improve systems such as taught by Tourtier. As such, the Examiner has established a prima facie case. We do not consider Appellants' assertion, on pages 14 and 15 of the Brief, to present sufficient evidence to rebut the Examiner's prima facie case. Appellants' statement that "Tourtier does not, in and of itself, address the complexities of storing data in a first order and reading the data out in a second order within the framework of a pipelined circuitry," does not identify any claimed complexities that are not taught by Tourtier. Further, Appellants have not identified any evidence to show that the complexities are nothing more than combining known techniques for their intended purpose. Thus, Appellants have not persuaded us of error in the Examiner's rejection based upon Eto in view of Fujinami, Hocevar, and Tourtier. Accordingly, we affirm the Examiner's rejection of claim 35 under 35 U.S.C. § 103(a).

Rejection under 35 U.S.C. § 103(a) as being unpatentable over Eto in view of Fujinami, Hocevar, Herrera, and Tourtier.

Appellants' arguments directed to the rejection of claim 40 present the same issue as discussed above with respect to the rejection of claim 35. As discussed above, Appellants' arguments directed to claim 35 have not persuaded us of error in the Examiner's rejection. Accordingly, we are similarly not persuaded of error in the Examiner's rejection of claim 40 and we affirm the Examiner's rejection of claim 40 under 35 U.S.C. § 103(a).

ORDER

For the aforementioned reasons, we affirm the Examiner's rejection of claim 33 under 35 U.S.C. § 112 (second paragraph), and affirm the Examiner's rejection of claims 29 through 50 under 35 U.S.C. § 103(a). The decision of the Examiner is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED

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